## REMARKS/ARGUMENTS

Reconsideration of the application is requested. Claims 21-40 are in the case.

## I. THE INTERVIEW

At the outset, the undersigned wishes to thank the Examiner (Mr. Zucker) for kindly agreeing to conducting a personal interview on this application. The interview was held on September 25, 2006, and the courtesies extended by the Examiner during the interview were most appreciated. The substance of the interview will be clear from the comments presented below.

## II. THE FORMAL REJECTION

Claims 20-24 stand rejected under 35 U.S.C. §112, second paragraph, as allegedly indefinite for the reasons detailed in paragraph 5 on page 2 of the Action. In response, and as discussed during the interview, the claims have been further clarified by spelling out the range rather than using a ">" symbol and square brackets. Withdrawal of the 35 U.S.C. §112, second paragraph, rejection is now respectfully requested.

## III. THE ANTICIPATION REJECTION

Claims 21-40 stand rejected under 35 U.S.C. §102(b) as allegedly anticipated by U.S. Patent 5,877,348 to Ditzel et al. That rejection is respectfully traversed.

The present invention is directed to a process for producing acetic acid by carbonylating methanol and/or a reactive derivative thereof with carbon monoxide in a

carbonylation reaction zone containing a liquid reaction composition comprising an iridium carbonylation catalyst, methyl iodide co-catalyst, a finite concentration of water, acetic acid, methyl acetate, at least one promoter selected from ruthenium, osmium and rhenium and a stabilizing compound selected from alkali metal iodides, alkaline earth metal iodides, metal complexes capable of generating $I^-$, salts capable of generating $I^-$, and mixtures of two or more thereof. The molar ratio of promoter to iridium is greater than 2 : 1, and the molar ratio of stabilizing compound to iridium is in the range greater than 0 : 1 to 5 : 1, except that, when the stabilizing compound is a lithium compound, the molar ratio of promoter to iridium is greater than 5 : 1 and the molar ratio of the lithium stabilizing compound to iridium is 0.05 : 1 to 5 : 1. According to the invention, loss of the catalyst and/or the promoter from the liquid reaction composition and/or subsequent process streams is reduced.

After further consideration following the interview, claim 21 has been amended to make it clear that when the stabilizing compound is a lithium compound, the molar ratio of promoter to iridium is greater than 5 : 1 and the molar ratio of the lithium stabilizing compound to iridium is 0.05 : 1 to 5 : 1. Moreover, claim 21 additionally specifies that loss of the catalyst and/or the promoter from the liquid reaction composition and/or subsequent process streams is reduced.

The invention as claimed is not anticipated by Ditzel. Ditzel does not disclose a process wherein, with the exception where the stabilizing compound is a lithium stabilizing compound, the combination of the molar ratio of promoter to iridium is greater than 2 : 1 and the molar ratio of stabilizing compound to iridium is in the range greater than 0 : 1 to 5 : 1. Moreover, when the stabilizing compound is a lithium stabilizing

compound, Ditzel does not disclose the combination where the molar ratio of promoter to iridium is greater than 5 : 1 and the molar ratio of the lithium stabilizing compound to iridium is 0.05 : 1 to 5 : 1.

Figure 5 of Ditzel discloses a system in which the promoter : iridium ratio is 5 : 1 and the molar ratio of lithium to iridium is 0.5-2.5 : 1. There is no disclosure in Ditzel of a combination of a molar ratio of promoter : iridium of greater than 5 : 1 together with a molar ratio of lithium stabilizing compound to iridium of 0.05 : 1 to 5 : 1.

In light of the above, It is clear that the outstanding anticipation rejection should be withdrawn. Such action is respectfully requested.

## IV. OBVIOUSNESS

While no obviousness rejection has been made in the outstanding Action, it is believed that the invention as claimed is not rendered unpatentable by Ditzel. At the outset, as noted during the interview, the problem addressed in Ditzel is quite different to that addressed in the present invention. Ditzel was principally attempting to achieve a high carbonylation rate at a low concentration of water which, in turn, allows for the use of a reduced amount of iridium catalyst. This has a cost benefit since iridium-containing catalysts are expensive, as well as the benefit of reduced production of by-products such as propionic acid (see, col. 2, lines 42-46).

The present invention, on the other hand, seeks to solve a different problem, namely minimizing or eliminating precipitation of iridium/promoter catalyst from the liquid reaction composition or subsequent process streams. As noted at page 2, lines 20-24, catalyst precipitation has been observed when the process is run at relatively high

concentrations of promoter, such as a promoter : iridium ratio of at least 2:1. It has been discovered by the present inventors that the catalyst precipitation problem may be addressed by operating the process with a molar ratio of promoter to iridium of greater than 2 : 1 while the molar ratio of stabilizing compound to iridium is in the range of greater than 0 : 1 to 5 : 1. Using these ratios, loss of the catalyst and/or the promoter from the liquid reaction composition and/or subsequent process streams is reduced. As noted above, when the stabilizing compound is a lithium compound, the molar ratio of promoter to iridium is greater than 5 : 1 and the molar ratio of the lithium stabilizing compound to iridium is 0.05 : 1 to 5 : 1, and loss of the catalyst and/or the promoter from the liquid reaction composition and/or subsequent process streams is reduced. Attention is directed to Examples 3-7 of the present application where no precipitate is formed using the molar ratios of promoter : iridium and stabilizing compound : iridium within the respective ranges as now claimed, as compared to Experiment B, where a precipitate is formed when the claimed combination of molar ratios is not utilized.

This is a surprising outcome which could not have been reasonably predicted by one of ordinary skill based on Ditzel. Ditzel contains no suggestion of a catalyst precipitation problem, nor that stability of the catalyst system may be improved by using the particular combination of molar ratios as claimed in the present application. In light of this, one of ordinary skill would not have had a reasonable expectation of success in minimizing or eliminating catalyst precipitation based on Ditzel. Absent any such expectation, there would have been no motivation for one of ordinary skill to resort to Ditzel in the context of the presently claimed invention. Ditzel therefore does not give rise to a *prima facie* case of obviousness of the presently claimed invention.

## V. CLAIM AMENDMENTS

As noted above, claim 21 has been amended to specify that when the stabilizing compound is a lithium compound, the molar ratio of promoter to iridium is greater than 5 : 1 and the molar ratio of the lithium stabilizing compound to iridium is 0.05 : 1 to 5 : 1, and further to specify that loss of the catalyst and/or the promoter from the liquid reaction composition and/or subsequent process streams is reduced. Basis for these amendments can be found in the application as originally filed at page 2, lines 25 onwards, which refer to the present application being directed to a process where loss of the catalyst and/or promoter is prevented or retarded. Basis for the ranges recited in amended claim 21 appear at page 9, lines 1 and 4 for the molar ratio of promoter to iridium being greater than 5 to 1, and at page 9, line 6 for the molar ratio of stabilizing compound to iridium being 0.05 to 5 and in Examples 3-6 where examples are provided in which the molar ratio is promoter to iridium is greater than 5 : 1 and the molar ratio of the lithium stabilizing compound to iridium is 0.05 : 1 to 5 : 1. No new matter is entered.

Favorable action is awaited.

Respectfully submitted,

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